TE

Roll No. .....

Total Pages : 6

BT-4/J-22

44137

YARN MANUFACTURE–II

Paper : PCC-TEX-204A/TT-202N

Time : Three Hours]

[Maximum Marks : 75

Note : Attempt *five* questions in all selecting *one* question from each section. Question No. 1 is compulsory.

Compulsory Question

1. Mark the correct one :

(i) With increased feed length, comber waste

(a) increases

(b) Decreases

(c) increases and then decreases

(d) remains unaffected.

(ii) For a guest cotton, the short fibre has a length

(a) > Mean length

(b) > Effective length

(c) < Mean length

(d) Less than 50% of effective length.

(iii) Higher comber waste is associated with

(a) Forward feed

(b) Backward feed

(c) Sideway feed

(d) Central feed.

(iv) Comber waste depends on

(a) Fibre fineness

(b) Fibre cross-section

(c) Fibre length

(d) Short fibre percentage.

(v) Amount of draft employed on speed frame is around

(a) 2

(b) 10

(c) 18

(d) 26.

(vi) Roving bobbin is tapered to ensure

(a) Uniform winding tension

(b) Uniform coil spacing

(c) More move content on bobbin

(d) No layer slip.

(vii) Rove fineness is expressed in terms of

(a) Meter

(b) Diameter

(c) Tex

(d) Kkx.

(viii) Twist needed for spinning a Rove from fine fibres is

(a) Lower

(b) Higher

(c) Zero

(d) Same for all fineness.

(ix) With measured Rove hank, the regularity of the product

(a) increases

(b) decreases

(c) increases and then decreases

(d) remains same.

(x) Roller setting at ring frame primarily depends on

(a) Fibre profile

(b) Fibre fineness

(c) Fibre length

(d) Yarn number.

(xi) The optimum pull angle at ring frame is

(a) 30°

(b) 27°

(c) 23°

(d) 21°.

(xii) With softer coils, the roller slippage

(a) increases

(b) reduces

(c) increases and then reduces

(d) remains same.

(xiii) For a balanced yarn, the doubling twist is between

(a) 30 - 40%

(b) 40 - 50%

(c) 60 - 70%

(d) 70 - 80%

of single twist.

(xiv) Excessive break draft on ring frame leads to

(a) Excessive fly release

(b) Hairy yarn

(c) Moving down

(d) All the three.

(xv) What is Cable yarn? (15×1=15)

SECTION-A

2. (a) What is the need for lap preparation before combing? 5

(b) What is Detaching? How is it performed in combing machine? Explain with diagram. 6

3. (a) What is Optimum noil? How would you determine it for a particular class of cotton? 7

(b) 24 card slivers each of 50 grains/yard are fed to a sliver lap machine giving 1.5 draft. The lap roller is 12" diameter and runs at 40 rpm. Find production per eight hours at 80% efficiency. 8

SECTION-B

4. (a) What is the fundamental difference between flyer leading and bobbin leading fly frames? 5

(b) Write a brief note on the modern developments that have been incorporated in fly frames. 10

5. (a) Mention common rove faults along with the reasons and remedies of each. 5

(b) What is the role of cone drums in fly frame? How are the drums designed? Illustrate assuming necessary data. 10

SECTION-C

6. (a) What are the characteristics of good spinning rings? Suggest the items to be mentioned for specifying the rings for a particular application. Also mention the parameters to be inspected in the rings been received. 10

(b) What is 20s conversion? How is it calculated? 5

7. (a) Mention the important ring yarn faults along with their reasons and control measures. 5

(b) Four ring frames of 400 spindles each, produce 70 hanks/spindle of 35s, 65 hanks/spindle of spindle of 50s, 55 hanks/spindle of 70s and 55 hanks/spindle of 80s in one week. What is the average count? 10

SECTION-D

8. (a) Differentiate between Dry and Wet doubling, and state their suitability for producing folded yarns. Also highlight the various threading styles to be used in wet doubling. 10

(b) What are Twist-on-twist and Weft-on-weft yarns? Give *two* examples of each. 5

9. (a) Mention the important properties of plied yarns. Why does doubling ratio affect yarn properties? 7

(b) Write a brief note on the method of doubling twisting on two-four-one twister. Also compare the properties of plied yarns produced by T.F.O. Twister and ring doubler. 8

Roll No. ..... Total Pages : 6

BT-4/J-22 **44138**

FABRIC MANUFACTURING–II

Paper : TT204N

Time : Three Hours] [Maximum Marks : 75

Note : Section-A (Question No. 1) is compulsory. Answer any *one* question from each of the remaining four section. All questions carry equal marks.

SECTION–A

(Compulsory Question)

1. (i) If the throw of two cams in plain weave loom is same, remaining other condition unchanged, then the front heald shaft will get ..... lift as compare to back heald shaft :

(a) higher

(b) lower

(c) same

(d) None of the above.

(ii) Secondary motion of weaving is .....

(a) Take-up

(b) Picking

(c) Shedding

(d) Warp protection.

(iii) The top reversing roller of large diameter is connected to the .....

(a) back heald shaft

(b) reed

(c) lease rods

(d) front heald shaft.

(iv) Before setting the cone over pick mechanism the crank shaft should be turned to the ..... position.

(a) top

(b) bottom

(c) front

(d) back.

(v) In side lever under pick mechanism, if the bowl is moved to the right of the slot of the circular disc, the timing of the pick is called .....

(a) early

(b) late

(c) normal

(d) none of the above.

(vi) To control uniform pick spacing every where along the cloth, a ..... motion is needed.

(a) picking

(b) take-up

(c) let-off

(d) beat-up.

(vii) As the beam weaves down in Negative let-off motion, the tension in warp sheet .....

(a) Increases

(b) Decreases

(c) Remain Constant

(d) Uncertain

(viii) A warp protector mechanism stops the loom .....

(a) if the shuttle is trapped in the shed

(b) if the weft thread is exhausted

(c) if the weft yarn breaks

(d) if a warp thread break

(ix) The sley is operated by .....

(a) Crankshaft

(c) Bottom shaft

(b) Counter shaft

(d) None of the above

(x) If eccentricity ration is 0.2, then the maximum speed and half maximum displacement will occurs at :

(a) At 90° and 270°

(b) After 90° and before 270°

(c) Before 90° and after 270°

(d) Before 90° and before 270°

(xi) In fast reed warp protecting motion, the loom stops before the ..... centre;

(a) Top

(b) Bottom

(c) Front

(d) Back.

(xii) The speed of the crankshaft in a loom is

(a) half the bottom shaft speed

(b) double the bottom shaft speed

(c) equal to the bottom shaft speed

(d) None of the above.

(xiii) ..... type of jacquard, cylinder turns every pick

(a) Single lift; single cylinder

(b) Double lift; single cylinder

(c) Double lift; Double cylinder

(d) Single lift; Double cylinder.

(xiv) Keighley Dobby is a

(a) Negative

(b) Positive

(c) Continuous

(d) Intermittent.

(xv) A loom is designed to run at 500 picks per minute. If the fabric width is 2.5 m and weft crimp on the loom is 8%, the weft insertion rate in m/min on the loom will be

(a) 1000

(b) 1250

(c) 1350

(d) 1450. (1×15=15)

SECTION–B

2. (a) Discuss different type of shedding motion principles. 8

   (b) Explain with a suitable diagram, the principle of positive tappet shedding mechanism. 7

3. (a) Explain the working mechanism of Under-pick motion with a neat & clean diagram. Also mention different setting point in the mechanism along with their significance. 10

   (b) Define sley eccentricity ratio. Mention its utility. 5

SECTION–C

4. (a) Explain the working of a 7-wheel take up motion. Calculate its dividend. Also compare it with 5-wheel take-up motion. 10

   (b) Explain the function and working of a side weft fork mechanism with suitable diagrams. 5

5. (a) Give a comparative assessment of the following :

   (i) Negative *Vs* Positive let off motion.

   (ii) Loose reed *Vs* Fast reed warp protecting motion. 8

   (b) Explain the function and working mechanism of a mechanical warp stop motion with suitable diagrams. 7

SECTION–D

6. (a) Explain the pirn changing mechanism with a suitable diagram. 7

   (b) What is the difference between weft mixing and weft patterning. Explain the working of 4×1 box motion with suitable diagram. 8

7. (a) What is a pick-at-pick and pick-at-will box motion? Explain the working of any one pick-at-picl< box motion. 10

   (b) Discuss advantage of automatic loom over plain loom. 5

SECTION–E

8. (a) Give a comparative assessment of tappet, jacquard and dobby shedding. 9

   (b) Explain the working mechanism of KEIGHLEY dobby with suitable diagrams. 6

9. (a) Define single lift and double lift principle in jacquard. Explain the working of a double lift single cylinder jacquard. 10

   (b) What is harness ties? Mention different parts of a harness. 5

Roll No. ..... Total Pages : 4

BT-4/M-22 **44139**

TEXTILE CHEMICAL PROCESSING–II

Paper-TT-206N/PCC-TEX-208A

Time : Three Hours] [Maximum Marks : 75

Note : Qusetion No. 1 is compulsory. Attempt *one* question from each of the four Unit. All questions carry equal marks.

Compulsory Question

1. (i) Thickeners are used in the printing recipe for .....

(ii) Batik printing is the ..... style of printing.

(iii) Non-contact type of printing

(a) Roller.

(b) Screen.

(c) Digital.

(iv) Transfer printing is most suitable for

(a) Cotton.

(b) Polyester.

(c) Jute.

(v) Emerizing is ..... type of finishing.

(vi) ..... is done for dimensional stability of polyester.

(vii) Combined pre-treatment performed in machine :

(a) CPB

(b) CDR.

(c) CPR.

(viii) Which instrument is used for evaluation of anticrease finish?

(ix) What do you mean by term LOI?

(x) Fastness to light graded using.

(a) Grey scale.

(b) Blue wool standards.

(c) Tegwa Scale

(xi) Fastness to ..... is inferior with Pigments.

(a) Light.

(b) Rubbing.

(c) Wash.

(xii) Bleaching with ..... is suitable for combined pre-treatment.

(a) Sodium hypochlorite.

(b) Hydrogen Peroxide.

(c) Chlorite.

(xiii) Eco-friendly agent used in desizing of textiles

(a) Acid.

(b) Amylase.

(c) Alkali.

(xiv) Which dyes are suitable for the dyeing of polyester?

(xv) Write the chemical test method to distinguish between cotton and viscose rayon. (15×1=15)

UNIT-I

2. Differentiate between dyeing and printing. Discuss various methods and styles of printing. Also explain roller printing machine with neat diagram. (15)

3. Explain the concept of transfer printing process and also give details the requirement of paper and machinery details in transfer printing. (15)

UNIT-II

4. Write short note on the followings :
   (a) Sanforizing.
   (b) Foam Finishing. (15)

5. (a) Write detail note on the Anticrease finishing of cotton textiles.
   (b) Discuss the Flame retardant concept and different methods to achieve the flame retardency. (7+8=15)

UNIT-III

6. Write the concept of continuous dyeing and give technical details on continues dyeing range with neat and clean diagram. (15)

7. (a) Discuss the some common problems in dyeing and their solutions.
   (b) Write a note on the Batik printing. (10+5=15)

UNIT-IV

8. Write a technical note on the :

(a) Identification of dye on natural textiles.

(b) Fastness properties of textiles. (15)

9. (a) Give details on the Eco-friendly processing of textiles.

(b) Mention the effluent treatment of textile effluent.

(7+8=15)

Roll No. ..... Total Pages : 3

BT-4/J-22 **44197**

TEXTILE FIBER–II

Paper-PCC-TEX-202A

Time : Three Hours] [Maximum Marks : 75

Note : Attempt *five* questions in all, selecting at least *one* question from each unit. All questions carry equal marks. Question No. 1 is compulsory.

UNIT–I

(Compulsory Question)

1. Attempt all questions. Each question carries equal mark.

(a) What is Monomer? Give examples. (1)

(b) Compare between Thermostat and Thermoplastic. (1)

(c) What do you mean by Tg? Give examples. (1)

(d) What do you understand by Dry Spinning? (1)

(e) Define Polyester. (1)

(f) What is Bulk? (1)

(g) What is Polypropylene? (1)

(h) Define Texturising. (1)

(i) Distinguish between TPA and DMT. (1)

(j) What are the advantages of Dp? (1)

(k) What do you mean by Molecular Weight? (1)

(l) What is wet spinning? (1)

(m) Compare between Nylon and Polyester. (1)

(n) What do you mean by Heat Setting? (2)

UNIT–II

2. What do you understand by FIBRE? What should be the fibre forming properties of a POLYMER? With the help of suitable diagrams, explain the polymerization techniques of Nylon and Polyester. (15)

3. What is Polymer? With the help of suitable examples, discuss the practical significance of Polymerisation process. Explain how the polymerization of Acrylic fibre takes place. (15)

UNIT-III

4. What is Nylon Fibre and Filament? With the help of neat flow diagram, Explain the production methods of Nylon polymer. Discuss the various properties of Nylon and also discuss how it varies with Polyester. (15)

5. How to produce Synthetic Filaments? Discuss. How Melt Spinning Systems differs than Wet Spinning Systems? Illustrate your answer with the example of neat sketches. Describe the Physical and Chemical properties of Acrylic. (15)

UNIT-IV

6. What do you mean by NYLON 66? With the help of suitable diagram and flow chart, explain the production system of NYLON 66 and NYLON 6. Compare the properties of both. (15)

7. What do you understand by Acrylic? With the help of suitable diagram and flow chart, explain the production system of Acrylic. Also discuss the Physical and Chemical properties of Acrylic Fibre. (15)

UNIT-V

8. What are Polyethylene fibres? Explain With the help of suitable diagram and flow chart, the production system of Polythylene fibres. Also discuss the Physical and Chemical properties of Polythylene and Polypropylene fibres. (15)

9. What is Texturising. With the help of suitable examples, and neat sketches, discuss the production systems of Texturised Filament. Also discuss the Physical and Chemical properties of Drawn and Textured yarns. (15)

Roll No. ..... Total Pages : 4

BT-4/J-22 **44199**

FABRIC MANUFACTURING-II

Paper-PCC-TEX-206A

Time : Three Hours] [Maximum Marks : 75

Note : Section-A (Question no.1) is compulsory. Answer any *one* question from each of the remaining *four* Sections. All questions carry equal marks.

SECTION-A

(Compulsory Question)

1. (i) What is the objective of the Let off motion? (1)

(ii) What will be the type of Jaquard if the cylinder turns in every pick? (1)

(iii) What is the primary objective of warp stop motion? (1)

(iv) What are the different types of weft stop motion found in shuttle looms? (1)

(v) What are the objectives of the drop box mechanism?

(vi) Which type of shed is formed in Keighley dobby? (1)

(vii) State the advantages of rotary dobby. (1)

(viii) State the two primary features of an automatic shuttle loom. (1)

(ix) Which type of shed is produced in double lift double cylinder jacquard? (1)

(x) What is the function of lingoes in jacquard shedding? (1)

(xi) State the primary difference between the 7 wheel and 5 wheels take up motion. (1)

(xii) How the increase of ends per inch affects the fabric production in a shuttle loom? (1)

(xiii) What is the most preferred shedding method for the production of 12×12 repeat weave? (1)

(xiv) State two benefits of auxiliary motions. (2)

SECTION-B

2. (a) Discuss the different types of take up used in shuttle looms. Also derive an expression for the pick spacing for a seven wheel take up system with the help of a labelled schematic diagram. (12)

(b) Discuss the effect on fabric quality if one teeth of the gear (meshed with fabric take up roller) is faulty. Also determine the width of fault. (3)

3. (a) Discuss the working principle of a positive let of motion with the help of suitable figures. (12)

(b) Draw and state, the warp tension variation from full weavers beam to empty beam with a suitable graph. (3)

SECTION-C

4. (a) State the classification of auxiliary motion and their utility. (3)

   (b) Discuss the different stop motions employed in automatic looms. Also discuss the working principle of a center weft fork mechanism with suitable figures. (12)

5. Explain the working mechanism of 4×1 drop box motion with the help of suitable figures. (15)

SECTION-D

6. State the basic features of an automatic loom. Also explain the working mechanism of the shuttle changing mechanism with the help of suitable figures. (15)

7. Discuss the advantages and limitations of dobby over cam shedding. Also explain the working mechanism of a positive dobby with the help of suitable diagrams. (15)

SECTION-E

8. State the features of different types Jacquards used in shuttle looms. Also explain the working mechanism of a single lift single cylinder jacquard with suitable figures. (15)

9. Determine the production in meter/8hours for a loom with following data ;

Loom width : 180 cm ; Loom R.P.M = 220 ; Ends per inch = Picks per inch = 60 ; Warp Tex = Weft Tex = 30 ; Width and length contraction % = 8% and Average stoppage time per hour = 12 minutes. (15)

Roll No. ..... Total Pages : 06

BT-6/J-22 46137

THEORY OF TEXTILE STRUCTURE

TT-302-N

Time : Three Hours] [Maximum Marks : 75

Note : Unit A (Q. No. 1) is compulsory. Answer any *one* question from each of the remaining four units. All questions carry equal marks.

1. (i) The surface twist angle does not depend upon :

(a) Specific volume of the yarn

(b) Yarn linear density

(c) Fiber length

(d) None of the above

(ii) The surface twist angle (in degree) for the limit of twist is :

(a) 90 (b) 180

(c) 70.5 (d) 72

(iii) What is the minimum value of twist retraction factor ?

(a) 0 (b) 1

(c) ∞ (d) None of these

(iv) Which type of packing provides more yarn density at 5th layer ?

(a) Close or Hexagonal

(b) Open
(c) Random packed
(d) None of the above

(v) Which type of the following fabrics has made from the yarns having highest twist multiplier ?
(a) Plain weave fabrics
(b) Complex jacquard woven fabrics
(c) Crepe fabrics
(d) Honeycomb designs

(vi) If the twist is increased twice, the diameter will :
(a) Increase by 2 times
(b) Decrease by 2 times
(c) No change
(d) None of the above

(vii) Mean fiber position of a zero twisted yarn will be :
(a) equal to the diameter of the yarn
(b) equal to the radius of the yarn
(c) twice of the diameter of the yarn
(d) none of the above

(viii) Which of the following yarn structures have the best migration phenomenon ?
(a) Ring spun yarns (b) Rotor yarns
(c) Airjet yarns (d) Friction spun yarns

(ix) Minimum extension of a fiber/filament during tensile loading is observed at :
(a) The filament is at 0°
(b) The filament is at 20°
(c) The filament is at 30°
(d) The filament is at 40°

(x) As per the Hearle-El-Sheikh's theory, the loss of contribution to yarn tension is affected by :

(a) Fiber length

(b) Fiber friction

(c) Number of turns per unit length

(d) All of the above

(xi) Why specific stress is more appropriate for the specification of spun yarns ?

(a) Due to non-uniformity of the yarn

(b) Due to flexibility of the yarn

(c) Due to visco-elastic nature of fibers

(d) All of the above

(xii) Which of the following weave structures having minimum crimp ?

(a) 1/1 Plain woven (b) 3/1 twill

(c) 4 end statin (d) 4/2 twill

(xiii) The maximum crimp in % of a square jammed plain woven fabric as per Pierce's theory is :

(a) 11 (b) 21

(c) 31 (d) None of these

(xiv) Maximum EPI is possible for (all other parameters are same) :

(a) 1/1 Plain (b) 2/1 Twill

(c) 3/1 Twill (d) 4/1 Twill

(xv) Calculate the crimp in a square non-jammed fabric if the thread spacing is half to the yarn diameter :

(a) 3/4 (b) 3/5

(c) 3/6 (d) None of the above

Unit I

2. (a) Derive a suitable mathematical expression for yarn diameter of an ideal helical yarn. Also prove that : **10**

$$d = \frac{1}{28\sqrt{\text{Ne}}} \text{inch}$$

(b) Find out the twist contraction factor of a cotton yarn of 20 Tex and it has 700 turns per meter. **5**

3. (a) An open packed ideal helical yarn consists of 7 layers. Then find out the number of fibers in each layer, total number of fibers in the yarn, packing coefficient of the yarn and the radius of the yarn. **10**

(b) Discuss the different parameters which make the closed packed form to differ from real yarns. **5**

Unit II

4. (a) State the significance of the fiber migration in a spun yarn. Discuss detailed procedure of the tracer fiber technique for the measurement of fiber migration. **10**

(b) Describe the geometrical migration. **5**

5. (a) Why migration occurs ? Discuss the effect of fiber parameters on the fiber migration behaviour. 5

(b) Discuss the various characterization techniques used for the evalution of fiber migration behaviour. 10

Unit III

6. (a) Discuss the effect of twist of the yarn strength using modified approach. 5

(b) Explain the Hamburger's model to determine the blend yarn strength. Discuss the effect of stress and strain in breaking zones of yarn spun of two component blends of fibers. 10

7. (a) Derive an expression for extension of a continuous filament yarn with the idealized helical structure under large strain. 10

(b) Determine the modulus of a continuous nylon filament yarn under small strain with the idealized helical structure having twist contraction factor is 1.11 and the Young's modulus of polyester filament is 3900 MN/m^2. 5

Unit IV

8. (a) Derive the following expression (standard symbols are used) : 7

$$h_1 = \frac{3}{4} p_2 \sqrt{C_1}$$

(b) Calculate crimp, fabric mass, fabric thickness and fabric cover factor of a square plain weave cotton fabric having woven from 24 Ne yarn. It has 32 ends and picks per cm. **8**

9. (a) Define fabric cover factor and derive a general expression for a 1/1 plain cotton fabric. Discuss the significance of fabric cover factor. Find out the theoretical maximum cover factor for 1/1 plain cotton fabric. **10**

(b) Discuss the phenomenon of crimp interchange. Also derive a suitable expression for crimp interchange equation using Pierce's 1/1 fabric geometrical model. **5**

Roll No. ..... Total Pages : 00

BT-6/M-22 46142

MULTIFIBRE SPINNING

TT-312N

Time : Three Hours] [Maximum Marks : 75

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. Q. No. 1 is compulsory.

1. Answer the following : **2.5×6=15**
   (a) Why does a ring yarn spun from finer fibres require less twist ?
   (b) What is Migration ? How does it occur ?
   (c) Why does a wider ribbon lead to more hairiness in ring-spun yarns ?
   (d) Which of the noble or French comb is suitable for extremely shorter wools ?
   (e) What is importance of loop and knot strength ?
   (f) What is dry carbonizing ?

Unit I

2. (a) Highlight the technological considerations involved in selecting fibres for improved process performance and yarn quality. **10**
   (b) Lay down wire-clothing requirements for processing synthetics fibres on a cotton card. **5**

3. With the help of neat sketches discuss the influence of fibre stress-strain characteristics and blend ratio on the tensile properties of ring-spun yarn. 15

Unit II

4. (a) Mention various impurities found in raw wool. How are they removed ? 5

   (b) Describe the working operation of a woollen card with a neat sketch. How does it differ from a worsted card ? 10

5. (a) Describe the function of a rectilinear comb with a neat sketch. Also point out the differences between a rectilinear and a noble comb. 10

   (b) How would you compute the production of a rectilinear comb ? Illustrate with example. 5

Unit III

6. (a) Mention various defects that are commonly found in jute fibre. 5

   (b) Explain Batching Process of Hessian and Sacked yarns. Also mention points of difference between the two processes. 10

7. (a) Classify jute yarns according to their end use requirements. 5

(b) Write a detailed note on the production technology of jute yarns giving a flow-diagram displaying the production root. 10

Unit IV

8. (a) Identify important classes of waste found in a cotton spinning mill along with suggestive measures to control them. 10

(b) Give a brief outline of the condenser system of waste spinning. 5

9. (a) Give a stepwise outline of the method to be used for producing silk yarn. Also mention the important properties and uses of silk yarns. 10

(b) Highlight important application areas of cotton waste yarns. 5

Roll No. ..... Total Pages : 04

BT-6/J-22 46231

TEXTILE TESTING-II

PCC-TEX-302A

Time : Three Hours] [Maximum Marks : 75

Note : Attempt *Five* questions in all, selecting *one* question from each Section including Q. No. **1** which is compulsory. All questions carry equal marks.

1. Attemt all parts (compulsory) : **1×15**

(i) What is Flexural Rigidity ?

(ii) What is Cramp Amplitude ?

(iii) What is Air Resistance ?

(iv) What is Weak Link effect ?

(v) What is absorptivity ?

(vi) What is work of ruptuer ? What is its unit ?

(vii) What do you mean by Fabric Assistance ?

(viii) What is Drape ?

(ix) What is fibre strength exploitation ratio ?

(x) What is Primary Creep ?

(xi) What is Cover Factor ?

(xii) What do you mean by AQL ?

(xiii) Which of the cotton or linen has poor crease recovery and why ?

(xiv) Why pills formation is more in knitted garments ?

(xv) What does a sewing thread of 50 TKT indicate ?

Section A

2. (a) Why does shrinkage occur in cotton fabrics ? How is it measured ? Describe. Why is it necessary to measure fabric thickness ? 7

(b) What is Cloth-cover ? Which factors influence it ? How will you compute cloth-cover of a simple plain woven fabric ? Illustrate. 8

3. (a) Talk about the mechanism of pilling along with factors affecting fabric pilling. Also specify ratings that are commonly used to express degree of damage is pilling. 8

(b) Explain the principle of measuring fabric crease recovery. Also mention the factors which influence crease recovery of fabric. 7

Section B

4. What do you mean by Bending Rigidity ? Why is it important ? Narrate the factors which affect the bending rigidity of a fabric. Also give an outline of the method used for measuring bending rigidity of a farm. 2+5+8

5. (a) What is Drape Coefficient ? How is it measured ? 7

(b) Why is fabric strength testing in commercial practice ? Explain. Also laydown the parameters which affect tensile strength test results of a test specimen. 8

Section C

6. (a) Classify fabric comfort giving suitable example of each class. Also state the meaning of the following terms :

(i) Wicking

(ii) Air permeability

(iii) Moisture vapour permeability. 10

(b) Highlight the factors which influence the liquid-water transmission. 5

7. (a) Enlist the parameters that affect the thermal comfort of a fabric. 6

(b) Outline the principle of measuring shear rigidity of a fabric using FAST. 6

(c) What is Water-proofing ? What is its importance ? 3

Section D

8. (a) Highlight the important properties of sewing threads. Also mention some common sewing defects. **6**

   (b) Which tests are generally performed for assessment of garment performance and why ? Give the name of at least one instrument to be used for each test. **9**

9. (a) What is concept of garment quality ? Specify the quality parameters to be inspected at various stages of garment manufacture along with instrument used for each paramater. **10**

   (b) Enlist ASTM quality parameters for any class of women's garment you are familiar with. **5**

Roll No. ..... Total Pages : 03

BT-6/M-22 46232

GARMENT TECHNOLOGY

PCC-TEX-304-A

Time : Three Hours] [Maximum Marks : 75

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

Unit I

1. (a) Briefly discuss functions of the following components in fashion pipeline :
   (i) Raw material supplier
   (ii) Distributors
   (iii) Auxiliary enterprise.
   (b) What are different types of trims ? Categorize with the help of suitable examples.
2. (a) Briefly explain the organizational chart of clothing factories. Discuss various functions of each component.
   (b) Differentiate between trimmings and accessories. Give suitable examples to justify the significance of each.

Unit II

3. Briefly explain the following in view of CAD for pattern making :

   (a) Desirable requirements of CAD software

   (b) Working of digitiser

   (c) Increased customization with CAD.

4. (a) With the help of a neat diagram, explain working of some latest automatic fabric spreading derive ?

   (b) Explain the following for layout :

   (i) Stepped Layout

   (ii) Scrambling.

Unit III

5. (a) With the help of a neat diagram, explain working of straight knife.

   (b) Explain the following for cutting :

   (i) Limitations of die-cutting

   (ii) Drill and its types.

6. What are commonalty used methods of marker-planning ? Discuss their working and different features.

Unit IV

7. (a) Briefly discuss different fabric properties which affect garment making-up process ?

   (b) Explain principles of the following for quality control :

   (i) Seam Strength

   (ii) Zipper Strength.

8. (a) Define Quality Control. What are different stages of garment quality control ? Give suitable examples.

   (b) What are different features of TQM ?

Roll No. ..... Total Pages : 04

BT-6/M-22 **46233**

KNITTING TECHNOLOGY

PCC-TEX-306A

Time : Three Hours] [Maximum Marks : 75

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. Q. No. 1 is compulsory. All questions carry equal marks.

1. (i) Knitting basically means : 1

(a) Interlacing (b) Interlooping

(c) Intermeshing

(ii) Which of the following has higher thickness ? 1

(a) Tuck loop (b) Float

(c) Plain knit

(iii) Which is self-acting needle ? 1

(a) Spring brearded (b) Compound

(c) Latch Needle

(iv) Movement of needle in knitting cycle depends upon : 1

(a) Cams (b) Sinker

(c) Stitch density

(v) Which knitting type requires formation of beam of warp ? 1

(a) Warp knitting (b) Weft knitting

(c) None of these

(vi) What are WPI and CPI ? Write numerical expression also. 2

(vii) What is meant by pattern wheel and guide bar ? 2

(viii) Why do warp knitting structures are used in technical textiles ? Mention the property. 2

(ix) Name variations of warp knitted structure with their notations. 2

(x) Write a note on yarn quality requirement for weft knitting. 2

Unit I

2. (a) What are the different knitting elements ? Explain in detail with the help of diagrams. Discuss various knitting needles also. 10

(b) Differentiate between warp and weft knitting. Discuss yarn requirement and raw material for both types of fabrics. 5

3. (a) How can you differentiate knitted fabric from woven fabrics ? Explain the working of plain rib and interlock knitting machine. Mention two characteristics of each. 7

(b) Explain, how knitting machines are classified ? 8

Unit II

4. Briefly discuss the following in reference to arrangement of needles and knitting cycle with neat and clean diagram and graphical notations. Also write characteristics and utility of fabric so made :

   (a) Plain 5

   (b) Rib 5

   (c) Interlock. 5

5. (a) Explain the loop formation mechanism in circular knitting machine with the help of neat diagram. Discuss the various machine parts and their working. 10

   (b) What do you understand by machine gauge and needle gaiting ? 5

Unit III

6. (a) Deduce the various fabric geometry properties in terms of cpi and wpi, stitch density, cover factor, tightness factor using appropriate mathemtical calculations. 5

   (b) Describe the fundamental of formation of knit, tuck and float stitiches. 7

   (c) What is spirality in knitted fabrics ? 3

7. (a) What are different knitted fabric defects ? How are they caused and what are the remedial measures ? 8

(b) What is GSM and write the mathematical expression for the same. 4

(c) Give formula for calculation of productivity of knitted structures. 3

Unit IV

8. (a) What is warp knitting ? Classify and compare warp knitting structures. 8

(b) Discuss the direct and indirect warping in warp knitting. 7

9. (a) Discuss application of weft and warp knit fabrics in technical textiles. 7

(b) What is seamless knitting ? Illustrate its working principle. Write advantages of seamless knitted structures. 8

Roll No. ..... Total Pages : 03

BT-6/J-22 46234

THEORY OF TEXTILE STRUCTURE
PCC-TEX-308A

Time : Three Hours] [Maximum Marks : 75

Note : Attempt *Five* questions in all including Q. No. 1 which is compulsory. Select *one* question from each Unit.

(Compulsory Question)

1. (a) What is Yarn ?
   (b) What do you mean by Twist ?
   (c) Define Fibre Crimp.
   (d) What do you understand by Spun Yarn ?
   (e) What do you mean by Textured Yarn ?
   (f) Define Yarn Geometry.
   (g) What do you mean by Cover and Cover Factor ?
   (h) What is Fabric Sett ?
   (i) Define Knitted Structure.
   (j) What do you mean by Packing Density ?
   (k) What do you mean by Setting Theories ?
   (l) What are deformation principles ?

(m) What do you mean by Handle ?

(n) What are Tensile properties ?

(o) Define Jamming structure. 1×15=15

Unit I

2. What do you mean by Yarn number ? With the help of neat diagram of Yarn Geometry, explain relationship between Yarn number and Yarn twist. Also discuss the measurement of Twist angle and Twist contraction. 15

3. What do you mean by Packing of Fibres ? With the help of suitable diagram, explain the packing factor of fibre in yarn. Also, discuss the relationship between yarn twist, yarn diamter and twist angle. 15

Unit II

4. What are basic concepts of Fibre Migration ? With the help of suitable examples, discuss the measurement techniques of fibre migration. 15

5. What are the staple fibre yarns and filament yarns ? With the help of suitable examples, explain how fibre properties are translated to yarn properties. 15

Unit III

6. What do you understand by Cloth Setting Theories ? With the help of neat diagram of yarn geometry, explain the various cloth setting theories. Also calculate the maximum sett using any *one* theory and suitable data assumed by yourself. 15

7. What is Fabric Cover ? How does it differ from Fabric Cover Factor ? With the help of neat sketches, discuss how Fabric Cover is measured ? Calculate Fabric Cover of a Gaberdine fabric, using suitable data. 15

Unit IV

8. Define Warp and Weft Knitted Structures. With the help of neat sketches, explain the Loop Configuration of knitted structure. 15

9. What are the different attributes of Knit Geometry ? With the help of neat diagram and proper calculation, explain the measurement of Fabric Cover, Loop Length, Tightness factor in Knitted structure. 15

Roll No. ..... Total Pages : 04

BT-6/J-22 46236

STRUCTURE AND PROPERTIES OF FIBERS

PEC-TEX-318A

Time : Three Hours] [Maximum Marks : 75

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. Q. No. 1 is compulsory.

1. (i) Intermolecular force not found in silk : 1
   (a) Peptide bond
   (b) H-bond
   (c) Cystine Linkages

   (ii) The methods used for investigation of fibre structure : 1
   (a) IR Spectroscopy
   (b) NMR
   (c) Both

   (iii) On which properties the moisture absorption depends most : 1
   (a) Crystalline Region
   (b) Amorphous Region
   (c) None of the above

(iv) Tenacity depends on :

(a) Maximum strength

(b) Strength of break

(c) Strength at any point

(v) Which fiber show better thermal resistance : 1

(a) Acrylic (b) Wool

(c) Acetate.

(vi) What is meant by dielectric constant of fibre ? 2

(vii) What is meant by thermal conductivity ? 2

(viii) Why do wear woolen clothes in winter ? Mention the property. 2

(ix) Name one fibres show negative birefringence and one which show positive. 2

(x) Write the different factors which affect moisture regain of fibers. 2

Unit I

2. (a) What are different techniques used to measure the degree of crystallinity of the fibers ? Which method you prefer and why ? 10

(b) What is orientation of fiber ? 3

(c) What are applications of X-ray in textile fibers ? 3

3. (a) Explain the physical and chemical structure for cotton fibers along with its longitudinal and cross-sectional view.

(b) Explain the physical structure of wool fibers along with their longutudinal and cross-sectional view. 5

Unit II

4. (a) Explain various factors which affect the load-elongation measurement of textile material. 7

(b) What is mechanical conditioning ? 2

(c) Explain the creep and stress relaxation behaviour from molecular point of view. 6

5. (a) Explain the Voigt-Kelvin model in detail for the viscoelasticity of fibers. 10

(b) Explain the different factor which influence the friction in fibers. 5

Unit III

6. (a) Deduce the relationship between the moisture content and moisture regain. 6

(b) What is biorefringence and its importance ? How can you measure it ? 5

(c) Why some fibers show negative birefringence ? Explain with suitable example. 4

7. (a) Explain the Fick's law of moisture for mositure diffusion. 5

(b) What are transverse diameter swelling, transvers area swelling, axial swelling and volume swelling ? How are they related ? 8

(c) Why viscose fiber show the lower wet strength ? 2

Unit IV

8. (a) Discuss the various parameters that define the thermal properties of fibers. 7

(b) What are difference between the first order and second order ? Discuss in detail. 8

9. (a) Describe the methods to minimise the static generation in textiles. 7

(b) How do you can measure the electrical resistance for textile fibers ? 8

Roll No. ..... Total Pages : 4

BT-8/J-22 **48240**

MANAGEMENT OF TEXTILE PRODUCTION

Paper–TT-406-N/PE-TEX-422-N

Time Allowed : 3 Hours] [Maximum Marks : 75

Note : Attempt any **five** questions in all, selecting **one** question from each Unit. Question No. **1** is compulsory. All questions carry equal marks.

(Compulsory Question)

1. Choose the correct answer from the choices given below : 15

(a) The most important factor influencing the location of a retail outlet in textile home furnishing house is :

(i) population density

(ii) availability of skilled labour

(iii) availability of water.

(b) Type of lay out preferred for spinning is :

(i) line layout (ii) functional layout

(iii) grouped layout.

(c) An effective automation system should always aim to :

(i) increase the speed of the machine

(ii) minimize material handling time

(iii) maximize storage space.

(d) The main objective of P and Q system is :

(i) management of inventory

(ii) production panning

(iii) optimize labour productivity.

(e) The purpose of corrective maintenance is to :

(i) analyse the cause of break down

(ii) to reduce labour in maintenance work

(iii) to reduce the time of breakdown.

(f) Increase in package size in ring frame cause :

(i) increase in power consumption

(ii) decrease in power consumption

(iii) no change in power consumption

(g) Maximum power in a spinning mill takes place in :

(i) Ring frame (ii) Speed frame

(iii) Comber.

(h) Which type of fire extinguishing system should not be used in fire caused by burning of metallic compounds/ metals?

(i) water type (ii) dry powder type

(iii) CO_2 type.

(i) The type of production system is followed in chemical industry is :

(i) mass production system

(ii) job production system

(iii) batch production system.

(j) The purpose of ETP in a process house is to :

(i) reduce the pollution impact of effluent

(ii) reduce the hardness of water

(iii) to reduce the TDA.

UNIT–I

2. Discuss in detail problems faced by decentralized textile sector. What are the major products in de-centralized textile sector? Why decentralized sector mainly consists of power loom sector? 15

3. Discuss the factors that need to be considered for selection of location for a garment manufacturing plant. What do you mean by utility services in a textile industry? 15

UNIT–II

4. What do you mean by micro level production planning and how does it differ from and macro level production planning? Discuss activities involved in micro level production planning in a spinning plant. 15

5. Explain the concept of ERP? Discuss in brief its application in a manufacturing industry. 15

UNIT–III

6. Give a break up of total power consumption in a spinning industry. Discuss the effect of following on power consumption of ring frame (i) Ring diameter, (ii) Spindle speed. 15

7. Discuss the objectives of maintenance of a manufacturing unit. Discuss important of any five maintenance activities in a spinning industry. 15

UNIT–IV

8. What are the factors need to considered for material handling system of a manufacturing plant? Why adequate material handling system is necessary in a manufacturing plant. 15

9. Discuss the benefits of maintaining good working environment in a manufacturing unit. Discuss some preventive measures for reducing accidents. 15

Roll No. ..... Total Pages : 8

BT-8/M-22 **48243**

NON-WOMEN TECHNOLOGY

Paper–TT-420N/PEC-TEX-412A

Time Allowed : 3 Hours] [Maximum Marks : 75

Note : Attempt **five** questions in all, selecting **one** question from each Unit. Question No. **1** is compulsory. All questions carry equal marks.

Compulsory Question

1. (i) Which of the following types of bonding is used in needle punching non-wovens? 1×15=15

   (a) Mechanical bonding

   (b) Thermal bonding

   (c) Chemical bonding

   (d) None of the above.

   (ii) Which of the product does not use non-wovens?

   (a) Apparels

   (b) Membrane

   (c) Carry Bags

   (d) None of the above.

   (iii) Which of the following statements is correct?

   (a) The higher is the length of fibres the better is the quality of wet-laid webs

(b) The lower is the length of fibres the better is the quality of wet-laid webs

(c) The length of fibres does not play an important role in determining the quality of wet-laid webs

(d) None of them.

(iv) Which of the following statements is correct?

(a) The single reduction needle has an intermediate section in-between shank and blade.

(b) The single reduction needle is used for highly flexible fibres.

(c) The single reduction needle is stiffer than the double reduction needle.

(d) The single reduction needle is not stiffer than the double reduction needle.

(v) Which of the following statements is true?

(a) The lower is the fibre linear density the higher is the numerical value of needle gauge.

(b) The higher is the fibre linear density the higher is the numerical value of needle gauge.

(c) The lower is the fibre linear density the lower is the numerical value of needle gauge.

(d) The fibre linear density does not decide the selection of needle gauge.

(vi) Which of the following statements is true for spunbond process?

(a) It requires thermoplastic polymers of low molecular weight.

(b) It requires thermosetting polymers of low molecular weight.

(c) It requires thermoplastic polymers of high molecular weight.

(d) It requires thermosetting polymers of low molecular weight.

(vii) Which of the following process sequences is correct for spunbond process?

(a) preparation, extrusion, quenching, lay-down, bonding, drawing, winding.

(b) preparation, extrusion, quenching, bonding, lay-down, drawing, winding.

(c) preparation, extrusion, quenching, drawing, lay-down, bonding, winding.

(d) preparation, quenching, extrusion, drawing, lay-down, bonding, winding.

(viii) What is the name of the process by which we apply chemical finishes to a fabric using kiss roll?

(a) Welding

(b) Coating

(c) Lamination

(d) Microencapsulation.

(ix) Which of the following statements is correct?

(a) Higher speed of cross-lapper delivery roller results in higher inclination of fibres relative to the cross-direction of the cross-laid batt.

(b) Higher speed of cross-apron results in higher inclination of fibres relative to the cross-direction of the cross-laid batt.

(c) Higher width of the carded web results in higher inclination of fibres relative to the cross-direction of the cross-laid batt.

(d) Higher width of the cross-laid web results in higher inclination of fibres relative to the cross-direction of the cross-laid batt.

(x) Which of the following statements is correct?

(a) The higher aspect ratio of fibres results in worse quality of air-laid web than the lower aspect ratio of fibres.

(b) The lower aspect ratio of fibres results in worse quality of air-laid web than the higher aspect ratio of fibres.

(c) The aspect ratio of fibres does not play an important role in determining the quality of air-laid webs.

(d) None of them.

(xi) Which of the following statements is correct?

(a) The higher is the length of fibres the better is the quality of wet-laid webs.

(b) The lower is the length of fibres the better is the quality of wet-laid webs.

(c) The length of fibres does not play an important role in determining the quality of wet-laid webs.

(d) None of them.

(xii) Which of the following barbed needles provide the most aggressive punching?

(a) Regular barb

(b) Medium barb

(c) Close barb

(d) High density barb.

(xiii) Which of the following statements is true in case of thermal calendar bonding process?

(a) There is no difference existing in-between center and surface of the web.

(b) There is a significant temperature difference existing in-between center and surface of the web.

(c) Point bonding results in stiffer fabrics as compared to area bonding.

(d) None of the above.

(xiv) Which of the following statements is true?

(a) Sueding is a process that is similar to singeing.

(b) Sueding is a process that is similar to calendaring.

(c) Sueding is a process that is similar to shearing.

(d) Sueding is a process that is similar to raising.

(xv) Which of the following energy conversions takes place during ultrasonic bonding?

(a) Solar energy is converted to thermal energy.

(b) Mechanical energy is converted to thermal energy.

(c) Mechanical energy is converted to electrical energy.

(d) Thermal energy is converted to mechanical energy.

UNIT–I

2. (a) State the definition of non-woven. Also classify the non-woven fabrics with an simple. 10

(b) Explain the influence of various fibre properties of the non-woven fabric's properties. 5

3. (a) Discuss the comparative assessment of the spun bonding and melt blown techniques of non-woven fabric production with respect to the process, product characteristics and application areas. 10

(b) Compare the structure and properties of carded and air-laid webs. 5

UNIT–II

4. (a) State the merits and demerits of needle punched fabrics. 5

   (b) Discuss the different developments in the design of the needling zone and the felting needle in needle punching machine. 10

5. Explain the manufacturing process of needle punched non-woven fabrics. Also, state the various process variables and their effects on product properties. 15

UNIT–III

6. (a) Discuss the effect of bonding temperature, pressure, contact time of web and quench rate on the properties of calender bonded non-woven fabrics. 10

   (b) Compare between calender bonding and fusion bonding with respect to the process and product characteristics. 5

7. (a) Explain point bonding technique of thermally bonded non-woven fabric production giving the different possible roll combinations, the product characteristics, and typical uses. 10

   (b) Discuss the operation and features of through-air drum systems used foe fusion bonding. 5

UNIT–IV

8. (a) Discuss the need of the finishing process for non-woven. Also explain the process flow chart used for wet finishing of non-woven fabrics made from polyethylene. 10

(b) State the procedure adopted to impart flame retardancy in non-woven. 5

9. (a) Explain the suitable tensile test method for non-woven. 10

(b) Discuss the importance of porosity for a non-woven. 5

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Total No. of Page(s): 1

BT-8/ M-22: 48346

PEC-TEX-402A: Technical Textile-II

[Max. Marks: 75

ons carry equal marks.
questions in total, such that at least one question from each unit.

Tex membrane? Explain its end uses.	02
d uses of biological protective clothing.	02
ft tissue implants.	02
ssification of protective textile.	03
inogenetic and sterilization are required in medical textile.	03
ed for artificial kidney and why?	02
?	01

UNIT I

l textile? Discuss in detail about the key requirements of the fibers l textile.	10
uirements for the implantable materials used in medical textile.	5
ote on	
devices	5
plant	5
	5

UNIT II

asic requirements of textile material used for thermal and fire proof ion?	10
and textile materials requirements used in parachute manufacturing.	05
es on	
lothing	5
	5
ion	5

UNIT III

portant functional requirements for sports textile. How are these mercial practices? Discuss	10
of textile in sports surface production.	05
? Discuss in detail about the key requirements of the fi	

Roll No..... Total No. of Page(s): 2

BT-8/ M-22: 48351

PEC-TEX-416A: Apparel Marketing & Merchandising

Time: 3 Hours] **[Max. Marks: 75**

Note: (i) All questions carry equal marks. (ii) Attempt 5 questions in total, such that at least one question from each unit. Q. No. 1 is compulsory.

Q1 (i) When you will execute a marketing plan, the best plan is 1

(a) Sharpen your interest (b) Create your competence

(c) Light up your passion (d) All of the above

(ii) CIF stand for 1

(e) Commercial, Invoice & Freight (f) Customer, Invoice & Freight

(g) Carriage, Insurance & Freight (h) None of the above

(iii) OOS is stand for 1

(a) Out of Surface (b) Original Stock

(c) Out of Stock

(iv) Training & Development is crucial to impart marketing skills in an individual. 1

(a) True (b) False

(v) INCO term DAF stand for 1

(a) Duty at Front door (b) Duty at Frontier

(c) Duty at Face

(vi) What is the difference between micro and macro environment? 2

(vii) Name the different light sources used for colour matching. 2

(viii) What is hanging stock? 2

(ix) Name the different types of credit available to exporter. 2

(x) Explain bit loom and lab dip samples. 2

UNIT -I

Q2 (a) What is marketing? Explain the its objective 07

(b) Explain the difference between selling and marketing. 07

(c) What are different types of selling techniques? Explain in brief 07

Q3 (a) What is Marketing Mix? Also explain the different elements of marketing mix 08

(b) What is fashion research? Explain the different source of fashion research. 07

UNIT II

Q4(a) What is the role of Quality Audit department in garment manufacturing process? 08

(b) What is the role of HR department in garment production unit? 04

(c) What is important textile testing parameters for zipper 04

Q 5 (a) Explain the different fabric faults to be analyzed by store department. (any 5) 05

(b) Woven fabric with 80 EPI and 68 PPI was purchased. During the testing it was noted that the yarn count is 2/80s for warp and 60s for weft. Calculate the GSM of the fabric by considering the warp and weft yarn crimp was 4 % each. 07

(c) Calculate order quantity for the following order details. Order quantity is 1,75,000 pcs, size breakup ratio for each colour is 1:2:1:2:1. 03

UNIT III

Q 6 (a) What are important qualities of a fashion merchandisers? 05

(b) What is specification sheet? Explain with suitable example. 05

(c) Explain the costing process of t-shirt. Assume the suitable parameters for same 05

Q 7(a) What are the different categories of apparel merchandising? 03

(b) Explain the role and responsibilities of fashion merchandiser. 06

(c) Explain the key activities in the process of development of Time and Action calender. 06

UNIT IV

Q8(a) Explain following payment term given below 06

(a) L/C operation flow b) Bank Guarantee

(b) Explain following INCO term along with their utility 09

a) Free alongside ship (FAS) b) Ex Work (EXW) c) Cost and freight (CFR)

Q 9 (a) What is the export incentive? Explain any 2 types with suitable example. 06

(b) Explain following export documents along with their importance 09

(a) Performa Invoice b) Mate Receipt c) Consular Invoice